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THE BURSA PHARYNGEA AND ITS RELATION TO NASO-PHARYNGEAL DISEASES.

—BY—

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THE BURSA PHARYNGEA AND ITS RELATION TO NASO-PHARYNGEAL DISEASES.

An important contribution* to the normal and pathological anatomy of the pharyngeal bursa was made by Dr. G. L. Tornwaldt, of Danzig, Germany, in a monograph published during the year of 1885. This monograph, which embodied the peculiar views of the author upon the bursa pharyngea and its importance in diagnosing and treating affections of the naso-pharynx, in my opinion, failed to receive the consideration it merited from Rhinologists, in this country. My present purpose is to again direct attention to Tornwaldt's cases, and the paper, which I publish today, contains the substance of remarks made by me in November 1886, before the Medical Society of the District of Columbia. It expresses tersely his

*Uber die Bedeutung der Bursa Pharyngea für die Erkennung und Behandlung gewisser Nasenrachenraum-Krankheiten, von Dr. G. L. Tornwaldt 8° Wiesbaden, 1885.

views and my clinical reflections thereon, together with a resumé of existing subject-literature.

Tornwaldt holds the following propositions to be established as the result of his studies:

1st. The orifice of the bursa pharyngea with the aid of the gaumenhaken can be seen on rhinoscopic examination in most people as a furrow, funnel or oval-shaped hole situated in the median line of the pharyngeal vault about mid-way between the protuberance of the atlas and the superior border of the posterior nasal openings.

2nd. The bursa has usually the form of a sac or blind canal, rarely of a furrow or slit, and in consequence of its structure is the frequent seat of diseases of the naso-pharyngeal space.

3rd. These diseases consist in hypersecretion from catarrhal inflammation of the membrane, lining the bursa, and of cysts from closure of the bursal opening.

4th. The hypersecretion from the bursa, either of a mucous or purulent nature, adheres to a portion of the vault or pharyngeal wall.

5th. Cysts of the bursa are generally distinct yellowish swellings visible in the middle of the vault.

6th. The origin of the secretion from the bursa may be suspected when there is no assignable cause for the appearance of a secretion on the posterior portion of the vault or pharyngeal wall, when rhinoscopy demonstrates that the secretion escapes directly from the bursal orifice, when such flow is checked by an application directed exclusively to the bursa, when as often happens hypersecretion results from the walls of a cyst, which has been split open.

7th. Hypersecretion and cysts present the symptoms which other diseases of the naso-pharyngeal space accompanied by inflammation and secretory changes manifest and may give rise to the following disturbances occurring in distant organs. Hyperæmia, hyperplasia or mucous polypi of the nares, ear diseases, granular pharyngitis, chronic catarrhal laryngitis, bronchial catarrh, chronic gastric catarrh, cough, bronchial asthma, chest pains, frontal and occipital headaches, etc.

8th. The duration of bursal affections is indefinite, when no treatment is instituted.

9th. The therapeutics aim to heal or destroy the diseased bursa pharyngea.

Among 1603 patients, who consulted

Tornwaldt for nasal, throat, lung or ear diseases, 892 had affections of the naso-pharynx. Of these 892 cases 202 were of the bursa pharyngea, 157 were examples of hypersecretion and 45 of cysts.

The therapeutic management consists first, in removing the dried secretions and in making insufflations of silver-nitrate, one to ten of starch, as well as the introduction of sounds coated with the nitrate into the bursal canal. The galvano-cautery can be also used to open the bursa. Twenty-five of Tornwaldt's most instructive cases are given in extenso at the end of his monograph.

Here are the headings of four of his cases:

Case IV. "Catarrh of the pharyngeal bursa, with thick mucopurulent secretion, granular pharyngitis, laryngeal catarrh, morning vomiting, galvano-caustic treatment, failure, cure by destroying the bursa pharyngea.

Case VI. Catarrh of the bursa-pharyngea with copious purulent secretion, frontal pain, melancholia, bursa difficult to treat on account of protruding atlas, cauterization with silver-nitrate, slight improvement, etc.

Case X. Cyst of the bursa with

cleft opening through which abundant pus escaped, hyperæmia of nasal mucous membrane. Cure by splitting cyst with galvano-cautery and applying silver-nitrate.

Case XVI. Cyst of the bursa, asthma, otitis media chronica, splitting of the cyst, improvement of ear trouble, prevention of asthma.

Strange as it appears it is nevertheless true that although the normal and pathological anatomy of the pharyngeal vault was the subject of exact study by William Hunter, as long ago as 1774, and in this century by F. J. C. Mayer, Robin, Luschka, Kölliker, Voltolini, Fränkel, Langer, Duroy, Ganghofner, and others, it remained for Dr. Tornwaldt in 1885 to report these interesting, novel, numerous and apparently valuable observations.

I say apparently valuable, simply because the ideas advanced and the therapeutic methods recommended, have not been before the medical world sufficiently long to receive the crucial test of experience. The matter is in every sense *sub judice*.

Czermak, in 1860, was, I believe, the first to view and recognize adenoid tissue in the naso-pharynx by the aid of

the rhinoscope, and I moreover think that Luschka, a patient and truthful observer, anticipated the recent discovery of Tornwaldt, when attributing two cases of growth, in the median line of the pharyngeal vault, to a pathological condition of the bursa pharyngea. These were the cysts reported by Czermak and Tröltsch, respectively.

I will here state that Luschka in 1868, accurately and fully described the bursa pharyngea, or as it is called by some, the bursa of Luschka, directing attention to its existence and supposed anatomical and physiological importance; but the fact was almost forgotten until F.Ganghofner, in 1878, revived the matter by claiming, contrary to the opinions of Luschka and Fränkel, that this bursa was the relic of a fœtal canal. The formation of the bursa pharyngea is easily explained if we remember the mode of development of the pharynx and base of the cranium. In Mammal embryos at the period of cranial flexion, the superior portion of the pharnyx forms a hollow diverticulum, extending across the base of the cranium towards the brain. This prolongation passes between the spheno-ethmoidal and spheno-occipital portions,

which being imperfectly developed and without connection or union between themselves, are with difficulty detected, being marked alone by a thickening of the fibrous tissue limiting the cranial cavity. The chorda dorsalis is at this point tangent to the posterior wall of the pharyngeal diverticulum, the latter having a little below its extremity a hollow bud or pimple, which, according to Seesel, is intended to become the pharyngeal tonsil. These facts have been observed in rabbit embryos of four weeks. A little later the spheno-ethmoid and spheno-occipital portions approach each other and finally unite. The superior portion of the pharyngeal diverticulum is then enclosed within the cranium, where it forms the hypophysis (glandular lobe of the pituitary body) the interior portion forms the bursa pharyngea. That portion of the prolongation situated between the hypophysal pouch and the bursa pharyngea does not disappear, but according to the investigation of Landzert is found as a straight canal in the sphenoid of the new born. M. Tédenat fully describes this interesting metamorphosis in a work printed in Paris, quite recently.

Considering the great impetus, which

has of late year's been given to the study of diseases of the naso-pharynx by thousands of accurate clinicians, in all parts of the world, who are daily peering into this cavity, noting every enlarged follicle, every ulcer, polypus, etc., and when the special journals at home and abroad have teemed with articles on these diseases, it is strange indeed that an affection possessing the many characteristic signs pictured by Tornwaldt, should have been overlooked. To Tornwaldt therefore is due great credit for his exhaustive investigation of this subject, embracing a record of two hundred and two cases, and for the simple methods by which we can obtain a radical cure of the affection.

Several reflections have presented themselves to me, in considering this question. Is disease of the bursa pharyngea always primary, is it not oftener secondary and the direct result of an extension of a naso-pharyngeal inflammation to the bursa? Has the disease been often seen uncomplicated with morbid changes in the surrounding tissue? Is it probable that all these serious complications and sequelæ mentioned by Tornwaldt can have their origin in so diminutive an organ as this bursa, for remember that

he regards the bursa pharyngea as being the *fons et origo* of trouble in 25 per cent. of his cases of nasal disease. To make this point clear, I desire to state here that in the median line of the naso-pharynx midway between the protuberance of the atlas and the posterior border of the vomer is an orifice, round or oval of variable dimensions, usually of the diameter of the head of a pin or needle leading to a canal from one-tenth to a third of an inch (two to eight mm.) in length, forming a bursa or cul-de-sac, known as the bursa pharyngea or bursa of Luschka. This bursa is located behind (its orifice opening usually, immediately below) the mass of adenoid tissue underlying the mucous membrane and is united to the former by a loose cellular tissue. The bursal walls consist of a cellular tissue with epithelial elastic fibres and exterior to this stroma there exists a reticulated tissue sparsely supplied with follicles. In the normal condition the secretion from this bursa is exceedingly small, but under the influence of disease it becomes copious. The secretion covers and adheres to the posterior wall of the naso-pharynx forming a triangular crust, whose apex points, or leads to the orifice of the bursa. From

the facility with which Tornwaldt cured many of his patients by a treatment directed solely to the bursa pharyngea, it would appear that a lack of treatment in this direction has been responsible for our failure in the past to cure many cases of supposed nasal catarrh.

I am inclined to believe that affections of the bursa pharyngea are often secondary or of extra-bursal origin, and that they reach that organ in the same manner that retro-nasal inflammation reaches the middle ear, namely by extension. I would hesitate to believe that the two hundred and two cases reported by Tornwaldt were all instances of primary and uncomplicated disease of the bursa-pharyngea and cannot divine how such a diagnosis could be substantiated. M. Luc fails to see wherein the remarkable labors of Tornwaldt furnish a single fact that is new, but I do not hurriedly endorse this opinion.

Schwabach has quite recently questioned the opinions of Luschka and Tornwaldt regarding the existence of a normal bursa pharyngea and claims that bursal affections are nothing more than an inflammation of the central portion of the adenoid tissue of the pharyngeal vault.

Now one of the best understood, most frequent and intractable of the affections of the naso-pharynx is adenoid vegetation or as denominated by some, retro-nasal adenoma.

The glands with which this region is so richly endowed become excessively increased in number and in dimension and often cover the entire vault hanging down like stalactites and seriously embarrassing nasal respiration, as well as the normal functions of this region. They are very liable to inflammation and ulceration in follicular pharyngitis, to simple hypertrophy and to transformation into naso-pharyngealpolypi. These sensitive glands are in immediate proximity to and in fact surround the short and small canal (one-tenth to a third of an inch long) forming the bursa. It becomes then almost evident that any changes in the normal condition of this adenoid tissue would influence the bursa pharyngea either by direct extension of the inflammatory process by contiguity or by mechanical pressure and consequent obliteration of the bursal orifice, a condition held by Tornwaldt to be a frequent result of disease of the bursa. Retention cysts of the pharyngeal bursa are due to closure of its open-

ing into the naso-pharynx, and forty-five of Tornwaldt's, two hundred and two cases, were of this nature.

My familiarity with the views entertained and methods recommended by Tornwaldt embraces an experience with four patients, two treated some months since. One of the latter was certainly improved, but the other, I regret to state, was unimproved. In the first case I employed the galvano-cautery, in the second, solid silver nitrate. I have two cases now under treatment, but of those a prognosis at this moment would be premature. Three of my four cases exhibit to my mind the fact that the disease is not always confined to the bursa, for there was well marked catarrhal or follicular inflammation of the naso-pharnx (perhaps secondary), which was also treated by the usual method. I did not resort to cocaine anæsthesia in any of my patients when operating and simply used the gaumenhaken of Voltolini, which was firmly held by my assistant. As is evident the very existence of inflammatory diseases of the naso-pharynx and bursa pharyngea, renders instrumental manœuvers in this locality more difficult by reason of the hyperæsthesia attending such diseases.

Tissier in France and Keimer in Germany have already reported cases fully confirming the ideas of Tornwaldt. Tornwaldt himself has collected in a comparatively short period, two hundred and two instances of diseases of the pharyngeal bursa. Living as he does in a city of moderate population, one is forcibly struck with the great prevalence of these affections and wonders how their existence could have been ignored these many years by rhinologists commanding immense clinical material. But granting that specialists have overlooked and underestimated the bursa pharyngea as a prime element in the causation of many (25 per cent.) of the cases of retronasal hyper-secretion, I think the treatment employed for the cure of affections accompanying bursal disease, whilst not the best, has been the means of frequently curing the latter. The percentage of cures in obstinate naso-pharyngeal discharge, has in the past been sufficiently small, but would have been much smaller, if as I have intimated above treatment of the pharyngeal vault had not also exerted some curative influence in disease of the bursa. The treatment recommended by Tornwaldt is first the removing of dried secretions and then

the applying of solutions or insufflations of silver-nitrate (one to ten). He also introduces delicate probes, coated with silver nitrate into the entrance to the bursa or opens the same by means of the galvano-cautery.

The applications of medicine in the form of liquids, powders, sprays, unguents etc., to the pharyngeal vault come in immediate contact with the orifice of the bursa pharyngea. The same can be said of surgical methods, such as the destruction of adenoid vegetations by means of the galvano-cautery or the extraction of the same by the snare, by Trautman's Curette, by Volkmann's spoon, by the ringmesser of Voltolini or Wilhelm Meyer, by the forceps of Cohen or Löwenberg, by the finger sheath curette of Capart or finally by the finger nail as recommended and practised by Guye of Amsterdam and E. Cresswell Barber of Brighton.

In conclusion, I consider the pathological investigations of Tornwaldt among the most valuable made in rhinology for years and am sure they will receive general attention and careful scrutiny at the hands of specialists. However, I must for reasons already given, state that I am not at this time

enthusiastic over the supposed facility with which chronic naso-pharyngeal discharges can in future be controlled by treating the bursa pharyngea, I shall certainly test faithfully and patiently the suggestions of Tornwaldt with the hope that I may obtain similar good results.

BIBLIOGRAPHY.

Cohen, J. S. Diseases of the Throat 8°, N. Y., 1879.

Duroy. Entwicklungs geschichte des Kopfes. Tubingen, 1869.

Fränkel, B. Allgemeine Diagnostik und Therapie der Krankheiten der Nase, des Nasenrachenraumes, des Rachens und des Kehlkopfes. Ziemssen's Handbuck der speciellen Pathologie und Therapie, Bd. IV, I. Hälfte, Leipzig 1876 Vogel.

Fränkel, B. Schlundkopf (Pharynx-Krankheinten) in Eulenburg's Real-Encyklopädie der gesammten Heilkunde, Bd. XII. Wien und Leipzig 1882. Urban and Schwarzenberg.

Ganghofner, Friedrich. Ueber die Tonsilla und Bursa pharyngea. Sitzungsbericht der K. Akademie der Wissenschaften Bd. LXXVIII, Abth. III, October 1878.

Hack, Wilhelm. Beiträge zur Exstirpation der nasalen Schwellapparate. Wochenschrift No. 28, 1884.

Keimer. Casuistiche Mittheilungen über die Erkrankungen der Bursa pharyngea. Monatschr. f. Ohren, Berl. May, June, July 1886.

Langer, P. Beiträge Zur Rhinoskopie. Eine angeborene Bildungsanomalie im Cavum pharyngo-nasale. Monatschrift für Ohren-

heilkunde Nasen, Rachen Kehlopf, und Luftrohrenkrankheiten Bd. XI, No. I 1877.

Luschka, H. Der Schlundkofs des Menschen. Mit 12 Tafeln Abbildungen. Tübingen 1868. Laupp.

MacKenzie, Morell. Diseases of the Throat and Nose, 2 vols. London 1884.

Mayer, F. J. C. Neve Untersuchungen auf dem Gebiete dem Anatomie und Physiologie. Bonn 1842.

Michel, Carl. Zur behandlung der Krankheiten der Mundrachenhöhle und des Kehlkopfes. Leipzig 1880. Vogel.

Störk, Carl. Klinik der Krankheiten des Kehlkopfes, der Nase und des Rachens. Stutt 1880. Enke.

Tissier, P. Etude de la bourse pharyngée ou bourse de Luschka etc. Ann. d. mal. de l'orielle. du larynx, etc., Paris. Vol. XII 377, 395 and 425-447.

Tornwaldt, G. L. Uber die Bedeutung der Bursa pharyngea für die Erkennung und Behandlung gewisser Nasenrachenraum-Krankheiten. 8° Weisbaden, 1885.

Voltolini, R. Die Rhinoskopie und Pharyngoskopie. II Auflage. Breslau 1879. Morgenstern.

Wendt und Wagner. Krankheiten der Nasenrachenhöhle und des Rachens II. Auflage. Ziemssen's Handbuch der speciellen Pathologie und Therapie Bd. VII, I Leipzig 1878. Vogel.

Zuckerkandl, E. Normale und pathologische Anotomie der Nasenhöhle und ihrer pneumatischen Anhänge. Wien 1882. Braumüller.